

Practice: 490 - Tree/Shrub Site Preparation**Scenario: #1 - Chemical Application****Scenario Description:**

This practice involves the use of various herbicides applied using ground-based machinery in order to remove undesirable vegetation and improve site conditions for establishing trees and/or shrubs. Typical sites include abandoned fields, pastures, rangelands, agricultural fields or forestland that was recently harvested. This practice is typically used to address the following resource concerns: degraded plant condition - undesirable plant productivity and health and inadequate structure and composition.

Before Situation:

Undesirable vegetation is present on the site including herbaceous plants and woody vegetation. Noxious and invasive species may also be present on the site. If left uncontrolled, undesirable vegetation will inhibit successful establishment of target species of trees and/or shrubs.

After Situation:

Undesirable vegetation has been treated using appropriate herbicides, reducing competition for target trees and/or shrubs. Site conditions are favorable for successful establishment of trees and/or shrubs. The typical size of the practice is 40 acres.

Associated practices may include: 612 Tree and Shrub Establishment, 315 Herbaceous Weed Control, 660 Tree/Shrub Pruning, 484 Mulching

Scenario Feature Measure: Area of Treatment

Scenario Unit: Acre

Scenario Typical Size: 40

Scenario Cost: \$2,006.98

Scenario Cost/Unit: \$50.17

Cost Details (by category):

| Component Name | ID | Component Description | Unit | Price (\$/unit) | Quantity | Cost |
|---------------------------------------|------|--|------|-----------------|----------|----------|
| Equipment/Installation | | | | | | |
| Chemical, ground application | 948 | Chemical application performed by ground equipment. Includes equipment, power unit and labor costs. | Acre | \$6.10 | 40 | \$244.00 |
| Materials | | | | | | |
| Herbicide, Sulfometuron & metsulfuron | 344 | A residual sulfonylurea herbicide that kills broadleaf weeds and some annual grasses. It is a systemic compound with foliar and soil activity. Refer to WIN-PST for product names and active ingredients. Includes materials and shipping only. | Acre | \$22.61 | 40 | \$904.40 |
| Herbicide, Surfactant | 1095 | Surfactants reduce the surface tension of water to produce more uniform coverage and penetration of herbicides, and weed killers. Paraffin Based Petroleum Surfactant. Refer to WIN-PST for product names and active ingredients. Includes materials and shi | Acre | \$1.32 | 40 | \$52.80 |
| Herbicide, Glyphosate | 334 | A broad-spectrum, non-selective systemic herbicide. Refer to WIN-PST for product names and active ingredients. Includes materials and shipping only. | Acre | \$15.63 | 40 | \$625.20 |
| Mobilization | | | | | | |
| Mobilization, small equipment | 1138 | Equipment <70 HP but can't be transported by a pick-up truck or with typical weights between 3,500 to 14,000 pounds. | Each | \$180.58 | 1 | \$180.58 |

Practice: 490 - Tree/Shrub Site Preparation**Scenario: #2 - Light Mechanical****Scenario Description:**

This practice involves the use of light/moderate machinery to clear above ground vegetation and to also rip/cut/lift underground root systems in order to improve site conditions for establishing trees and/or shrubs. Typical sites include abandoned fields, pastures, rangelands, agricultural fields or forestlands that have been harvested. This following resource concerns: soil quality degradation - compaction, soil erosion - sheet and rill, and degraded plant condition - undesirable plant productivity and health and inadequate structure and composition.

Before Situation:

Undesirable vegetation is present on the site including herbaceous plants and sparse woody competition. Noxious and invasive species may also be present on the site. If left uncontrolled, undesirable vegetation will inhibit successful establishment of target species of trees and/or shrubs. Soils are compacted as a result of harvesting heavy equipment activities or other land uses.

After Situation:

Undesirable vegetation has been removed using a bush hog to knock down stand vegetation and heavy tillage equipment is used to breakup and lift root systems, breakup plow pans (<18" deep), thus enhancing the conditions for planting and survival of trees and/or shrubs. Soil compaction has been alleviated, allowing penetration of moisture and allowing roots to grow properly. Site conditions are favorable for successful establishment of trees and/or shrubs. The typical size of the practice is 40 acres.

Associated practices may include: 612 Tree and Shrub Establishment, 315 Herbaceous Weed Control, 660 Tree/Shrub Pruning, 484 Mulching

Scenario Feature Measure: Area of Treatment**Scenario Unit:** Acre**Scenario Typical Size:** 40**Scenario Cost:** \$2,208.68**Scenario Cost/Unit:** \$55.22**Cost Details (by category):**

| Component Name | ID | Component Description | Unit | Price (\$/unit) | Quantity | Cost |
|-------------------------------|------|---|------|-----------------|----------|----------|
| Equipment/Installation | | | | | | |
| Mower, Bush Hog | 940 | Equipment and power unit costs. Labor not included. | Hour | \$53.33 | 16 | \$853.28 |
| Tillage, Primary | 946 | Includes heavy disking (offset) or chisel plow. Includes equipment, power unit and labor costs. | Acre | \$16.50 | 40 | \$660.00 |
| Labor | | | | | | |
| Equipment Operators, Light | 232 | Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers | Hour | \$20.89 | 16 | \$334.24 |
| Mobilization | | | | | | |
| Mobilization, small equipment | 1138 | Equipment <70 HP but can't be transported by a pick-up truck or with typical weights between 3,500 to 14,000 pounds. | Each | \$180.58 | 2 | \$361.16 |

Practice: 490 - Tree/Shrub Site Preparation**Scenario: #3 - Light Mechanical with Chemical****Scenario Description:**

This practice involves the use of light/moderate machinery to clear above ground vegetation and to also rip/cut/lift underground root systems followed by appropriate herbicide application in order to improve site conditions for establishing trees and/or shrubs. Typical sites include small trees (<2" dbh) and brush cover on less than 60% of area that is not appropriate to the site or providing the desired condition for the landowner. Typical sites include abandoned fields, pastures, rangelands, agricultural fields or forestlands that have been harvested. This following resource concerns: soil quality degradation - compaction, soil erosion - sheet and rill, and degraded plant condition - undesirable plant productivity and health and inadequate structure and composition.

Before Situation:

Undesirable vegetation is present on the site including herbaceous plants and sparse woody competition. Noxious and invasive species may also be present on the site. If left uncontrolled, undesirable vegetation will inhibit successful establishment of target species of trees and/or shrubs. Soils are compacted as a result of harvesting heavy equipment activities or other land uses.

After Situation:

Undesirable vegetation has been removed using a bush hog to knock down stand vegetation and heavy tillage equipment is used to breakup and lift root systems, breakup plow pans (<18" deep), thus enhancing the conditions for planting and survival of trees and/or shrubs. Soil compaction has been alleviated, allowing penetration of moisture and allowing roots to grow properly. Site conditions are favorable for successful establishment of trees and/or shrubs. The typical size of the practice is 40 acres.

Associated practices may include: 612 Tree and Shrub Establishment, 315 Herbaceous Weed Control, 660 Tree/Shrub Pruning, 484 Mulching

Scenario Feature Measure: Area of Treatment**Scenario Unit:** Acre**Scenario Typical Size:** 40**Scenario Cost:** \$4,215.66**Scenario Cost/Unit:** \$105.39**Cost Details (by category):**

| Component Name | ID | Component Description | Unit | Price (\$/unit) | Quantity | Cost |
|---------------------------------------|------|--|------|-----------------|----------|----------|
| Equipment/Installation | | | | | | |
| Mower, Bush Hog | 940 | Equipment and power unit costs. Labor not included. | Hour | \$53.33 | 16 | \$853.28 |
| Tillage, Primary | 946 | Includes heavy disking (offset) or chisel plow. Includes equipment, power unit and labor costs. | Acre | \$16.50 | 40 | \$660.00 |
| Chemical, ground application | 948 | Chemical application performed by ground equipment. Includes equipment, power unit and labor costs. | Acre | \$6.10 | 40 | \$244.00 |
| Labor | | | | | | |
| Equipment Operators, Light | 232 | Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers | Hour | \$20.89 | 16 | \$334.24 |
| Materials | | | | | | |
| Herbicide, Sulfometuron & metsulfuron | 344 | A residual sulfonylurea herbicide that kills broadleaf weeds and some annual grasses. It is a systemic compound with foliar and soil activity. Refer to WIN-PST for product names and active ingredients. Includes materials and shipping only. | Acre | \$22.61 | 40 | \$904.40 |
| Herbicide, Surfactant | 1095 | Surfactants reduce the surface tension of water to produce more uniform coverage and penetration of herbicides, and weed killers. Paraffin Based Petroleum Surfactant. Refer to WIN-PST for product names and active ingredients. Includes materials and shi | Acre | \$1.32 | 40 | \$52.80 |
| Herbicide, Glyphosate | 334 | A broad-spectrum, non-selective systemic herbicide. Refer to WIN-PST for product names and active ingredients. Includes materials and shipping only. | Acre | \$15.63 | 40 | \$625.20 |
| Mobilization | | | | | | |
| Mobilization, small equipment | 1138 | Equipment <70 HP but can't be transported by a pick-up truck or with typical weights between 3,500 to 14,000 pounds. | Each | \$180.58 | 3 | \$541.74 |